

# **Explanation of Significant Differences, Hanford 300 Area, 300-FF-2 Operable Unit, 618-10 Burial Ground**

## **Introduction to the Site and Statement of Purpose**

This decision document presents an Explanation of Significant Differences (ESD) for the USDOE Hanford 300 Area site, Benton County, Washington, # WA2890090077. The Interim Action Record of Decision (ROD) addressed by this ESD is for operable unit 300-FF-2, signed on April 4, 2001.

This ESD is issued in accordance with § 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) 42 U.S.C. § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) 40 C.F.R. § 300.435(c)(2)(i). The US Department of Energy (DOE) is the lead agency, the US Environmental Protection Agency (EPA) is the lead regulatory agency, and the Washington State Department of Ecology is the non-lead regulatory/support agency.

This ESD and supporting information will become part of the Administrative Record for the 300-FF-2 ROD (NCP 40 C.F.R. § 300.435(c)(2)(i)(A) and 300.825(a)(2)). This ESD has been developed in accordance with § 113(k) of CERCLA, 42 U.S.C. § 9613(k). The Administrative Record is available for review at the DOE Administrative Record Center, 2440 Stevens Center Place, Room 1101, Richland, WA. Phone 509-376-2530. Hours: 9:00-12:00 and 1:00-3:30 Monday through Thursday, 9:00-12:00 and 1:00-2:30 on Hanford work Fridays. The Administrative Record is also available on line at [www2.hanford.gov/arpir](http://www2.hanford.gov/arpir)

Waste sites in the 300-FF-2 Operable Unit (OU) resulted from disposal of waste from facilities primarily performing research, materials and process testing, and production of uranium fuel rods for use in Hanford's nuclear reactors. The 618-10 burial ground is a 300-FF-2 waste site that received chemical and radioactive laboratory waste during the 1960s. DOE began remediation of the burial ground under the Interim Action ROD in April 2011. While exhuming waste from 618-10, many small bottles of liquid have been discovered. The liquid needs treatment for safe and/or compliant disposal. The ROD calls for any necessary treatment to be conducted following excavation, however, treatment after removal from the excavation hole poses a safety hazard because of the uncertainty concerning the integrity of the bottles.

## **Site History, Contamination, and Selected Remedy**

The interim action ROD for 300-FF-2 was signed in April 2001. The selected remedy requires the removal of contaminated soil, structures and associated debris; treatment as necessary to meet waste acceptance criteria at an acceptable disposal facility; disposal of contaminated materials at the Hanford Environmental Restoration Disposal Facility (ERDF), Waste Isolation Pilot Plant (WIPP) in Carlsbad, NM or other disposal facilities approved in advance by EPA; recontouring and backfilling of excavated areas followed by infiltration control measure (i.e. revegetation); institutional controls to ensure that unanticipated changes in land use do not occur which could result in unacceptable exposures to residual contamination; and ongoing groundwater and ecological monitoring to ensure effectiveness of the remedial actions. The

ROD also provided a regulatory framework for a "Plug-In" or "Analogous Sites" approach for accelerating future remedial decisions.

An ESD was signed in May 2004 that modifies the cleanup levels for eight waste sites, including the 618-10 burial ground from industrial to "unrestricted" use levels based on a change in the reasonably anticipated future land use to unrestricted land use which is represented by an individual in a rural residential setting. An ESD was also issued in 2009 which "plugged in" fourteen additional 300 Area waste sites to the remedy selected in the ROD. The ESD also added 2 waste sites for characterization sampling and provided that if remediation is required, those waste site(s) may be plugged in to the selected remedy in the ROD.

During the 1960s waste from several laboratories was disposed into the 618-10 burial ground. The waste was primarily dry waste, but in addition many bottles of liquid were disposed. (See administrative record document # 0093782.) Both historic disposal records and the bottles unearthed thus far indicate that bottles are small, typically 0.1 to 0.5 liter, with some 1 liter. Following disposal all waste was buried.

#### Basis for the Document

Between April and July, 2011, 188 bottles with liquid waste were discovered while exhuming one fourth of one of the 618-10 burial ground trenches. (See administrative record document # 0093780.) Based on this experience, an additional large number of bottles are anticipated to be removed from the burial ground. Because of the unknown integrity of each bottle, removing each bottle from the excavation for individual handling poses a challenge to be done safely. (See administrative record documents # 0093778 and 0093779.) On July 8, 2011 one such bottle ruptured and resulted in an air release. (See administrative record document # 0093781.) Safety for both workers and the environment can be improved if the bottles are placed into a tray in the excavation for in-hole treatment.

#### Description of Significant Differences or New Alternatives

The selected remedy requires that contaminated soil and/or debris above cleanup levels be removed from the site, treated as necessary to meet disposal facility requirements, and sent to a specified or EPA approved disposal facility. The ROD describes treatment as occurring typically either in the 300 Area or at ERDF. Treatment within the excavation hole before completing removal was not provided for in the remedy.

The selected remedy is being modified to allow for necessary treatment of liquid waste in bottles, up to one gallon per bottle, to occur in trays within the excavation area in accordance with an approved work plan. Treatment will be the same as the treatment that would be conducted following excavation and removal of the waste to satisfy Land Disposal Restrictions (LDRs) and the Waste Acceptance Criteria (WAC) of the disposal facility. Post treatment verification sampling will be performed to demonstrate compliance with LDRs and the WAC. Equivalent treatment performance is expected as treatment in trays in the excavation hole will utilize the same treatment as the treatment that would be conducted following removal. The material will be contained in trays until treatment is completed. This change will help reduce environmental releases and ensure the safety of workers by keeping the untreated liquid waste

in the excavation hole away from site workers. Potential LDRs and WAC for disposal are met by mixing the liquid into grout which immobilizes metals and radioactive metals expected in the waste, and neutralizes acids.

This ESD does not change the scope of the action. Within the excavation, a tray will be placed. Bottles with liquid will be placed in the tray with some dirt augmented with soil fixatives to protect from air releases. The bottles will be broken in the tray with construction equipment and the liquid will be absorbed into the soil in the tray. When a sufficient quantity of waste has accumulated in the tray, the waste will be treated with grout.

Cost will be less than treatment following excavation and removal because bottles cannot be safely removed from the excavation hole for evaluation and treatment without individually overpacking each bottle to help prevent spills and other releases. Treatment in the excavation hole as described above will not result in any delays in cleanup and in fact should allow cleanup to be conducted more rapidly than treatment following excavation given how the bottles would need to be managed to minimize releases and protect workers.

#### Support Agency Comments

EPA and DOE consulted with the Department of Ecology in accordance with the NCP 40 C.F.R. § 300.435(c)(2) and CERCLA § 121(f). Ecology was provided an opportunity to comment on this ESD and concurs with this ESD.

#### Statutory Determinations

The DOE and EPA have determined that these significant changes comply with the statutory requirements of CERCLA § 121, 42 U.S.C. 9621, are protective of human health and the environment, comply with federal and state requirements that are applicable or relevant and appropriate to the remedial action, are cost-effective, and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

#### Public Participation Compliance

The public participation requirements set out in the NCP, 40 C.F.R. § 300.435(c)(2), have been met by publishing this ESD, making it and supporting information available to the public in the Administrative Record and at the four information repositories: (1) US Department of Energy Public Reading Room, Washington State University Tri Cities, Consolidated Information Center, Room 101-L, 2770 University Drive, Richland, WA 99354. Phone 509-372-7443. (2) University of Washington, Suzzallo Library, Seattle, WA 98195. Phone 206-543-4664. (3) Portland State University, Branford Price Millar Library, 1875 SW Park Avenue, Portland, OR 97201. Phone 503-725-4542. (4) Gonzaga University, Foley Center, East 502 Boone, Spokane, WA 99258. Phone 509-323-3834. A notice summarizing the ESD will be published in a major local newspaper, namely the Tri City Herald.

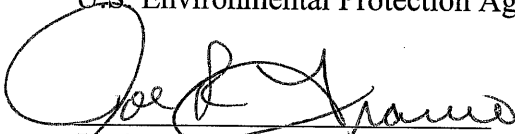
## Authorizing Signatures

Signature sheet for the Explanation of Significant Differences for the Interim Action Record of Decision for the 300-FF-2 Operable Unit between the U.S. Department of Energy and the U.S. Environmental Protection Agency, with concurrence by the Washington State Department of Ecology.



Daniel D. Opalski, Director  
Office of Environmental Cleanup  
U.S. Environmental Protection Agency, Region 10

8/3/2011  
Date



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U.S. Department of Energy

7/29/2011  
Date

Jane A. Hedges by ER [signature]

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Date